

CLAIMS

1. A display device comprising an array of pixels, each pixel comprising a thin film transistor switching device (14) and a display element (16), the array being arranged in rows and columns, wherein each row of pixels shares a row conductor (10), which connects to the gates (14a) of the thin film transistors (14) of the pixels in the row, wherein row driver circuitry (30) provides row address signals for controlling the switching of the transistors (14) of the pixels of the row, wherein the row address signals each comprise a waveform (42, 44) for providing an ON gate voltage and an OFF gate voltage to the drive transistor (14), wherein the device further comprises control circuitry (50) for shifting the ON gate voltage and the OFF gate voltage in dependence on drive and/or environmental conditions, the control circuitry (50) maintaining a constant difference (39) between the ON gate voltage and the OFF gate voltage.

2. A display device as claimed in claim 1, further comprising a temperature sensor (54), and wherein the control circuitry (50) shifts the ON gate voltage and the OFF gate voltage in dependence on temperature.

3. A display device as claimed in claim 2, wherein the ON gate voltage and the OFF gate voltage are both higher for lower temperatures than for higher temperatures.

4. A display device as claimed in any preceding claim, wherein the control circuitry (50) shifts the ON gate voltage and the OFF gate voltage in dependence on the display device refresh rate.

5. A display device as claimed in claim 4, wherein the ON gate voltage and the OFF gate voltage are both higher for higher refresh rates than for lower refresh rates.

6. A device as claimed in any preceding claim, wherein each column of pixels shares a column conductor (12) to which pixel drive signals are provided, and wherein column address circuitry (32) provides the pixel drive signals.

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7. A display device as claimed in any preceding claim, comprising a liquid crystal display.

8. A display device as claimed in any preceding claim further comprising means for compensating for kickback.

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9. A portable device (70) having a display device (72) as claimed in any preceding claim.

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10. A row driver circuit for an active matrix display device for providing row address signals, in which device each pixel comprises a thin film transistor (14) switching device and a display element (16), and the row address signals are provided to the gates (14a) of the thin film transistors (14) of the pixels in the row, wherein row driver circuit comprises:

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means (30) for providing row address signals comprising a waveform for providing an ON gate voltage and an OFF gate voltage to the drive transistor,

an input for receiving a control signal (52) dependent on drive and/or environmental conditions; and

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means (50) for shifting the ON gate voltage and the OFF gate voltage in response to the control signal (52), and maintaining a constant difference between the ON gate voltage and the OFF gate voltage.

11. A method of generating row address signals for an active matrix display device, the method comprising:

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providing row address signals (42, 44) comprising a waveform for providing an ON gate voltage and an OFF gate voltage to the drive transistors (14) of the pixels in a row, and

shifting the ON gate voltage and the OFF gate voltage in dependence
5 on drive and/or environmental conditions whilst maintaining a constant difference between the ON gate voltage and the OFF gate voltage.

12. A method as claimed in claim 11, wherein the shifting is in dependence on temperature

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13. A method as claimed in claim 11 or 12, wherein the shifting is in dependence on the display device refresh rate.